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Environmental Consultants

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FAX 703 471-6676**SCS ENGINEERS****May 20, 1998**
File No. 0298005**Mr. Kenneth L. McVeary**
Executive Vice President
Charles E. Smith Commercial Realty
2345 Crystal Drive
Crystal City
Arlington, Virginia 22202**SUBJECT: Environmental Review Comments, Draft EIS for the Carlyle
and Eisenhower Avenue Sites****Dear Mr. McVeary:**

SCS Engineers (SCSI) has completed our review of the April 1998 Draft Environmental Impact Statement (EIS) for the U.S. Patent and Trademark Office Consolidation. Our comments for the Carlyle and Eisenhower Avenue sites are enclosed. For each site, we provide a summary of the current environmental conditions and concerns, followed by itemized comments on the draft EIS.

Our comments are based upon our review of the draft EIS, site visits, review of historical information maintained by the City of Alexandria, and the performance of many environmental projects for sites located in the West End area of Alexandria since the 1970s. The comments were prepared by Jeffrey D. Marshall, PE and Michael W. McLaughlin, PE, with assistance from a few other SCS personnel in our Reston office that have project experience at sites located in the West End area of Alexandria.

In summary, the draft EIS does a relatively thorough job of identifying historical property use and potential environmental problems. However, we believe the draft EIS provides a poor interpretation of the potential impacts of the many environmental concerns identified for the Carlyle and Eisenhower Avenue sites.


Environmental concerns have been identified for both sites that could result in significant cost and schedule impacts. The draft EIS does not acknowledge the potential cost increases and schedule delays associated with several environmental concerns. The report implies that investigation and remediation of subsurface conditions would not be a major undertaking. To the contrary, available information indicates that both sites have the potential for significant subsurface contamination problems. These problems must be further investigated, in conjunction with the appropriate regulatory agencies.



Mr. Kenneth L. McVearry
May 20, 1998
Page 2

We recommend that the draft EIS be revised to address the seriousness of these concerns. It is also recommended that the EIS provide a more detailed site-by-site comparison discussing the advantages and disadvantages of each site.

Sincerely,



Jeffrey D. Marshall, PE
Project Manager
SCS ENGINEERS



Michael W. McLaughlin, PE
Project Director
SCS ENGINEERS

JDM/MWM/idm

Enclosures

cc: Nicholas C. Yost

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May 20, 1998

EISENHOWER AVENUE SITE

SUMMARY

The Eisenhower Avenue site consists of three parcels located in the West End area of Alexandria. Currently, each of the three parcels is asphalt paved and provides parking for the existing office buildings and Eisenhower Avenue Metro Station. Historically, the sites appear to have been swamp/marshland. These wetlands were filled, perhaps around the turn of the century. A few small areas of wetlands remain on Parcels I and II.

Uncontrolled waste disposal has occurred on all three parcels. No comprehensive characterization of the materials used for filling the wetlands or wastes disposed at the site has been performed. Exploratory borings indicate the presence of potential industrial wastes, cinders, and other combustion waste materials. This is not unexpected, as the West End area has a history of significant industrial activity dating back over a century.

The presence of unknown backfill and waste materials is a significant concern as these materials would likely be encountered during construction activities at the three parcels. In our experience, sites containing combustion wastes are often contaminated with toxic combustion byproducts, such as carcinogenic polynuclear aromatic hydrocarbons and various dioxins. Some of these toxic compounds are semi-volatile, and may present human health risks via inhalation as well as via direct contact and ingestion.

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During the public hearing held in Alexandria, a representative of the developer of the Eisenhower site indicated that a Phase I and Phase II investigation of the site had been completed, and that the results were favorable. According to the DEIS, one groundwater and two or more soil samples were collected and analyzed. Given the extent of the historical dumping which has been reported at the site, such a limited investigation would not be adequate to address environmental conditions relating to the heterogeneous nature of the materials apparently dumped.

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Whether or not the limited sampling investigation described in the DEIS is the Phase I and Phase II investigation mentioned during the hearing, all available information regarding sampling locations and analytical results should be made available for review. The DEIS did not mention the kinds of hazardous substances commonly associated with combustion wastes (dioxins, carcinogenic polynuclear aromatic hydrocarbons such as benzo(a)pyrene, benzo(a)anthracene, and similar compounds), and probably reflects the fact that samples were not analyzed for these constituents. If the scope of the Phase II investigation conducted at the site did not evaluate all areas in which historical dumping has been reported, or if it did not consider hazardous substances commonly associated with combustion wastes, then these gaps in information should be filled before the DEIS is finalized.

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The proposed development includes the excavation of an estimated 194,000 cubic yards of subsurface materials; foundations are planned at depths of 14 to 20 feet below grade. If excavated materials require management as hazardous waste, the cost of excavation, transportation, and disposal would cost on the order of \$1,000 per cubic yard, or \$194 million for the planned excavation. In any event, the presence of contaminated materials

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May 20, 1998

will result in significant additional expenses and delays associated with waste characterization, waste disposal, air monitoring, personnel training and personal protection measures, and dewatering of potentially contaminated groundwater.

The site appears to be subject to regulations published under the Virginia Open Dump program (§9 VAC 20-80-170), which defines open dumps as sites which fail any of eight criteria, two of which are the use of solid waste fill in a floodplain, and releases to groundwater resulting in contamination beyond drinking water standards. The Virginia Open Dump program requires a thorough site characterization, evaluation of remedial alternatives, and site remediation, all pursuant to a prescriptive and time-consuming process with little regulatory flexibility. ,

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It does not appear that the draft EIS provides site-specific estimates of mobile source emissions that would be generated in the PTO move to the Eisenhower Avenue site. We believe that such estimates are required to provide a reasonable comparison of the alternatives. It appears that mobile source emissions for the Alexandria sites will be greater than those for the Crystal City site, thereby exacerbating the already unacceptable air quality situation in the Washington Metropolitan area.

9.1-2

SPECIFIC COMMENTS

1. While the majority of the three parcels comprising the site is currently covered with asphalt paved parking lots, the materials beneath the asphalt are not natural. As documented in the draft EIS, filling and waste disposal activities are known to have occurred:

- Page 3-77: "The Eisenhower Avenue site appears to have been swamp/marshland throughout the historic occupation of the region, perhaps adapted for agricultural uses in the early 1900s
- Page 3-77: 'Currently, the Eisenhower Avenue site consists of paved parking areas, for both the Metrorail station, as well as for other buildings. Until these areas were filled and paved by the early 1970s, the only purpose of the undeveloped land was as a dumping ground, surrounded by a trailer park.'
- Page 2-19: 'A Phase I Environmental Site Assessment prepared for the site describes evidence of past dumping on the site and in the vicinity.'
- Page 3-158: "A review of aerial photographs indicates some dumping occurred at the site. Most, if not all of the dumping occurred in the 1980s. The precise locations of the dumping activities are unknown. However, some dumping is known to have occurred on each of the three parcels. Exploratory soil borings indicated that landfilled materials may have included cinder materials, black carbonized matter and trace amounts of black burnt glass.'

Details concerning the types and quantities of materials used for fill, and the types and quantities of wastes disposed at the site, appear to be unknown. While the DEIS acknowledges the need for additional subsurface investigation to further characterize the disposed materials (page 3-159), no details concerning the nature, extent, cost, and

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May 20, 1998

schedule for such investigation is provided.

We agree that existing information does not adequately characterize subsurface conditions at the site, and that additional investigation is warranted. The available information indicates that filling of the swamp/marshland, and waste disposal activities, occurred over a period of nearly 100 years. Thus, it is likely that the materials beneath the existing parking lots are quite non-homogeneous across the three parcel. While the EIS acknowledges the occurrence of filling and waste disposal activities at the site, the potential significance of these activities is understated or not addressed.

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Based upon the history of over a century of industrial activity in the vicinity of the site, there is a potential for the presence of significant quantities of hazardous substances in the subsurface at the site. The proposed development activities include the excavation of 194,000 cubic yards of material (page 2-19). The building foundation would extend to 14 to 20 feet below grade, into groundwater (page 4-4). Thus, adequate characterization must be completed prior to the excavation activities.

However, due to the lack of information regarding fill activities and the apparent heterogeneity of the waste fill, there may be no cost-effective, timely means for adequately characterizing site conditions to ensure that, should the project proceed, hazardous substances would not be unexpectedly encountered during construction, thereby resulting in significant delays, cost impacts, and potential human and environmental exposure.

9.3-7

2. Part IV of the Virginia Solid Waste Management Regulations, entitled Management of Open Dumps and Unpermitted Facilities (§9 VAC 20-80-170), specifies site investigation and corrective action requirements for sites that meet the definition of "open dump". Eight criteria for determining whether a site is considered an "open dump" are specified in §9 VAC 20-80-180. Sites that meet any of the criteria shall be classified as an open dump. While the currently available information is insufficient to make definitive determinations for all of the listed criteria, it appears that the site may meet some of the open dump criteria. These include:

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- **Criterion:** '1. Floodplains: Sites or practices in floodplains that restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste, so as to pose a potential hazard to human health and wildlife or cause a potential for contamination of land or water resources.'

Preliminary Evaluation: The presence of wetlands is documented in the draft EIS at page 2-19: 'A small area of wetlands is located at the northeast edge of Parcel I and another narrow wetland area is located along the southern boundary of Parcels I and II associated with an intermittent stream that flows to Hooff's Run. All the wetlands continue off-site.' As discussed above, uncontrolled filling of the swamp/marshland and uncontrolled waste disposal activities have been confirmed at the site.

Further Investigation Needed: An investigation of the types, quantities, and composition of fill materials and wastes disposed in the portions of the sites

May 20, 1998

that are located in and adjacent to the floodplain is required to determine whether the site meets this criterion.

Criterion: '4. Groundwater. A. A site or practice that **contaminates a sole source aquifer or **contaminates** an underground drinking water source beyond the solid waste boundary or beyond an alternative boundary **specified**.'**

Preliminary Evaluation: As discussed above, uncontrolled filling of the swamp/marshland and uncontrolled waste disposal activities have been confirmed at the site. Such practices would result in waste materials being placed in contact with groundwater. For purposes of these regulations, groundwater at the site would meet the definition of an underground source of drinking water, and the regulatory action levels for contamination do not require much contamination (i.e., contamination is defined by drinking water standards). The environmental sampling program described in the DEIS (at page 4-125) is not adequate either in number of wells (one groundwater sample was collected from one soil boring) or in types of analyses (Virginia regulations require analyses for a number of organic and inorganic parameters) to determine whether the groundwater criterion is met.

Further Investigation Needed: An investigation of the types, quantities, and composition of fill materials and underlying groundwater quality is required, particularly in areas outside the solid waste boundary at the site.

Criterion: '8. Safety. A. Explosive Gases: The concentration of explosive gases generated by the site or practice exceeds:

(1) 25% of the lower explosive limit for the gases in structures (excluding gas control or recovery system components) or, in the absence of structures located on the site, in the nearest occupied structure in the vicinity of the site: and

(2) The lower explosive limit for the gases at the property boundary....'

Preliminary Evaluation: The former presence of swamp/marshland, combined with the known disposal of solid wastes on each of the three parcels, suggests the possibility for subsurface methane.

Further Investigation Needed: A site specific investigation is required to determine subsurface methane concentrations within each parcel and along the property boundaries of each parcel. Because no structures are currently located on the parcels, methane measurements are required in the nearest occupied structures. These may include: The Hoffman buildings, the Holiday Inn, the Eisenhower Metro Station, and the American Trucking Association.

May 20, 1998

In the event that the site meets one or more of the criteria and is considered an open dump, then the VADEQ open dump regulations proceed to an extensive site investigation and corrective action program as described by §9 VAC 20-80-210. Remedial requirements established under this program are detailed and prescriptive, and will likely require several years to complete.

3. Known waste disposal activities, and former swamp/marshland status, suggest the potential for methane gas (i.e. landfill gas and/or marsh gas). A subsurface methane investigation is required to assess methane concentrations prior to final design efforts. In the event that methane is detected, the building design must include appropriate controls (e.g., subsurface gas extraction systems) to prevent the migration of methane into the buildings.

4. Six known underground storage tank releases have occurred in the vicinity of the site. These include the Alexandria Go-Cart site, the WMATA site (located between the two southern parcels), the C&P Telephone vault, the Norfolk Southern Railroad Diesel Shop, and the Potomac Concrete site. Very brief summaries of the releases are provided on page 3-158. However, the current regulatory status of the releases is not provided. The EIS should identify whether the sites have achieved approved site closure from VADEQ. For those sites that have not yet been closed by VADEQ, a more detailed description of the site status, investigation results, and planned or ongoing remediation efforts should be provided. Locations of sites that have not been closed should also be provided.

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5. Estimated mobile source emissions resulting from motor vehicle use are presented in Section 4.6.1.3. Estimates of regulated organic gases (ROGs) and nitrogen oxides (NOx) are presented. While this section is confusing, it appears that the EIS concludes that mobile source emissions within the air basin will be essentially the same regardless of which alternative is selected, and that the increased emissions will be due solely to the increased activity and office space at the new location. Site specific factors that will impact the mobile source emissions do not appear to have been incorporated into the estimates. Details concerning the basis and assumptions for the estimated emissions are not presented in the draft EIS.

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Specifically, we have the following concerns:

- Actual mobile source emissions will be based upon both commuting distance and commuting time to each location. Emissions will be generated while vehicles are idling in a traffic jam. We are concerned that the estimated emissions for the Alexandria alternatives have not incorporated emissions generated while vehicles sit in gridlock, particularly during construction of the new interchange at the 'mixing bowl' in Springfield and the new Capital Beltway bridge over the Potomac River.
- It does not appear that a site specific, average commuting distance was incorporated into the mobile source emissions estimates. If such an assumption were incorporated, the emissions estimates would not be the same for each alternative. In actuality, it appears that emissions for the Crystal City alternative would be less than the Alexandria alternatives since the Crystal City site is located closer to the urban core (Table 4.5.1-2 indicates the Crystal City site is

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9.1-2

May 20, 1998

1.3 miles from the urban core, while the Carlyle site and the Eisenhower site are 5.4 miles and 6.1 miles, respectively, from the urban core).

Estimated emissions should include both PTO employees and visitors. While visitor travel may have been considered in the DEIS emissions estimates, it does not appear that site specific factors have been considered. A significant number of PTO visitors are patent attorneys, many of whom have located their offices in the Crystal City area due to the frequent need to visit PTO offices. If the PTO moves to Alexandria, the patent attorneys will be required to commute to the new location until such time as their current leases expire and they can relocate to space near the new facility (if such space is available). It is our understanding that one of the largest patent attorney firms recently entered into a long-term lease in Crystal City. The increased emissions resulting from long-term commuting of the patent attorneys should be included in the emissions estimates for the Alexandria alternatives.'

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Qualitatively, it appears that relocation will increase time and vehicles, and thus the mobile source emissions of ROG and NO_x will increase. The Washington Metropolitan area is already a non-attainment area for ground-level ozone. ROG and NO_x react with sunlight to increase ground-level ozone concentrations. Thus, relocation of the PTO to either Alexandria site will exacerbate an already unacceptable air quality condition.

6. During the public meeting for the Alexandria alternatives, a representative of the Eisenhower Avenue site indicated that Phase I and Phase II Environmental Site Assessment (ESA) Reports have been prepared for the site. These documents have not yet been made available for review.

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Phase II ESAs are typically performed based upon Phase II information indicating known or suspected contamination. We believe that both the Phase I and Phase II reports should be reviewed to assess the scope and depth of the investigations.

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May 20, 1998

CARLYLE SITE

SUMMARY

The Carlyle site and surrounding area has a history of industrial activity dating to the 1600s. Activities have included a rail yard (including maintenance and fueling), a scrap iron and auto reclamation facility, waste storage, battery reclamation, open burning of waste materials, warehouses, a glass factory, asphalt facilities, and landfilling. Portions of the site that were originally marsh/swampland were backfilled with unknown materials, presumably around the World War II timeframe.

The City of Alexandria has imposed special procedures to protect buildings from subsurface methane in the vicinity of the former landfill located on and adjacent to the Carlyle site. Multiple investigations have documented the presence of methane explosive concentrations in the subsurface. The City's methane protection procedures, which are not discussed in the draft EIS, would apply to the new PTO buildings.

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Site investigation activities have been performed at the site since the 1980s. Soil and groundwater contamination have been found, and portions of the site have been remediated. However, remediation of all contaminated areas has not been completed. Environmental conditions in some portions of the site (e.g., the roundhouse) have not yet been investigated. Buried wastes have been encountered in portions of the site where they were not anticipated. Thus, an unknown and probably substantial amount of remediation remains to be performed at the site.

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Site specific soil cleanup levels reportedly have been developed with VAOEO for the site, although it is not clear that the cleanup levels meet recent changes to regulations.. Development of these cleanup levels was based upon the absence of groundwater contamination, and an exposure scenario that assumed the soils would remain undisturbed, thereby preventing human contact. Anthropogenic contaminants have been detected in groundwater.

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The proposed PTO construction would require disturbance of subsurface soils, with the excavation of an estimated 60,000 cubic yards of soil and fill at depths up to about 35 feet below grade. Thus, it appears that the basis upon which the soil cleanup standards were developed is not applicable to the proposed PTO development. New cleanup standards are warranted for the proposed development. The new standards are likely to be more stringent than the existing standards in order to protect site workers and nearby populations during the construction phase.

9.3-2

PCBs are among the many contaminants detected in soil at the site. It appears that a PCB cleanup goal has been established with VADEQ. However, it does not appear that USEPA has participated in or approved the PCB cleanup goal. In our experience, remediation of PCB spills is subject to regulations published by USEPA (and not DEQ) under the Toxic Substances Control Act (TSCA). USEPA approval of the PCB cleanup plans should be obtained.

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May 20, 1998

If the 60,000 cubic yards of soils and fill to be excavated at the site require management as a hazardous or toxic waste, the cost of excavation, transport and disposal will be on the order of 61,000 per cubic yard, or \$60 million for the proposed excavation.

Based upon documented site conditions, the **Carlyle** site is a candidate for the "open dump" definition under the Virginia Solid Waste Management Regulations, Part IV (Management of Open Dumps and Unpermitted Facilities). These regulations require the performance of a comprehensive site investigation and corrective measures. The VADEQ should be requested to provide a definitive, written determination as to whether the site will be subject to the open dump program.

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It does not appear that the draft EIS provides site specific estimates of mobile source emissions that would be generated in the PTO moves to the **Carlyle** site. We believe that such estimates are required to provide a reasonable comparison of the alternatives. It appears that mobile source emissions for the Alexandria sites will be greater than those for the Crystal City site, thereby exacerbating the already unacceptable air quality situation in the Washington Metropolitan area.

SPECIFIC COMMENTS

1. The site has a history of industrial activity, both **onsite** and in the immediate vicinity, extending back into the **1800s**. Industrial activities at and in the vicinity have included:

- Rail yard, including rail car and locomotive servicing, fueling, lubricating, and repair (page 3-149).
- Scrap iron and auto reclamation yard on the northern half of the **Carlyle** site in the early 1950s (page 3-149)
- Scrap yard on the northern half of the **Carlyle** site in the early 1950s (page 3-149)
- Waste material storage, including scrap iron, waste paper, and junk cars. on approximately 10 acres in the southwest corner of the **Carlyle** site (page 3-149)
- Liquid draining, battery reclamation, and open burning of waste products (page 3-149).
- City of Alexandria landfill on and adjacent to the southern portion of the **Carlyle** site. Wastes reportedly disposed at the landfill include construction and demolition debris, fly ash, digested sewage sludge, and inert fill material.
- Capital Hill Landfill to the immediate east and south of the southeastern portion of the **Carlyle** site.
- The **Virginia** Glass Bottle Company in the early 1900s. The facility included storage areas for raw materials and product, melting furnaces, coal storage, ovens, and a machine shop.

May 20, 1998

- Industrial Displays Inc., Design and Productions, Inc.. Zephyr Awning and Manufacturing Company, Midas Muffler, **Stewarts** Car Care Center, Thrifty Transmission, Automotive Service Garage, American Machine and Foundary Company, Hallmark ironworks, **Ballenger** Street Warehouse, Harrison Brothers Plumbing and Heating Supplies, Guiffre Warehouse (beer and wine distribution). [Reference: Phase I Environmental Audit, 12-Acre Site on Duke Street in Alexandria, Viroinis, prepared by Dames & Moore for The Oliver Carr Company. May 11, 1989]
- Newton **Asphalt** Company, Alexandria Bituminous Corporation. [Reference: Feasibility Study and Remedial Action Plan for the CNS Development Site Southern Railway Company Property, Alexandria, Virginia, prepared by Camp Dresser & McKee Inc.. November 1990).

2. As discussed on page 3-72, the southern portion of the **Carlyle** site was originally swamp and marshland. Development in the ares occurred in the years surrounding World War II, after the marsh was filled in. Little, if any, information is available regarding the types of materials that were used as fill. Based upon the history of onsite and local industrial operations at that time (see comment number 1, above), the potential exists for waste materials to have been used for fill. Excavation and remedistion of industrial waste would have significant cost and schedule impactson the PTO construction project.

3. The results of the environmental database searches performed for the Eisenhower Avenue site are presented under the heading Findings of Published Records on pages 3-155 through 3-157. This discussion includes the Alexandria City Landfill, located approximately 0.05 miles east of the Eisenhower Avenue site (page 3-157). The Findings of Published Records for the **Carlyle** site are presented on pages 3-149 to 3-152. Why is the Alexandria City Landfill not identified in the environmental database search results for the **Carlyle** site?

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4. Polychlorinated biphenyls (PCBs) have been detected in soil at the site. A cleanup goal of 10 mg/kg has been established for PCBs. It appears that this cleanup goal has been negotiated with VADEQ. It does not appear that USEPA has approved the 10 mg/kg cleanup goal for this site.

9.3-5

As explained below, it is not clear that VADEQ has regulatory authority for the PCB cleanup at the **Carlyle** site. In our experience, PCB cleanups are regulated by USEPA, typically under the Spill Cleanup Policy for fresh releases, while historical releases are negotiated with EPA on a site by site basis.

Cleanup of PCB releases is regulated by USEPA under the Toxic Substances Control Act (TSCA). The PCB Spill Cleanup Policy developed by USEPA under TSCA appears at 40 CFR 5761, Subpart G. While the soil cleanup goal for PCBs in soil in unrestricted areas is 10 mg/kg, the Spill Cleanup Policy is applicable only to spills that occur after May 4 1987 (see 40 CFR §761.120 (a) - Scope). Spills that occurred prior to this date are excluded from the Spill Cleanup Policy "... because of the likelihood that the site contains more pervasive PCB contamination than fresh spills and because old spills are generally more difficult to clean up than fresh spills..." For spills that occurred prior to May 4, 1987, the regional EPA TSCA Coordinator must be contacted to negotiate an appropriate response action and cleanup goal.

May 20, 1998

Although specific details concerning the release(s) of PCBs at the Carlyle site are not known, it appears likely that the release(s) occurred prior to May 4, 1987. Therefore, the USEPA Region III TSCA Coordinator must be consulted to develop appropriate response actions and cleanup goals for the Carlyle site. In the past, EPA has required some historical PCB spills to be cleaned up to background (i.e., non-detect for PCBs).

Further complicating the PCB issue, significant changes to the PCB regulations were proposed by EPA in 1994. The proposed modifications include revisions to the existing PCB Spill Cleanup Policy. The 1994 proposal has been modified to address public comments, and the latest version of the proposed amendments has been forwarded to OMB for approval. The TSCA hotline could not provide an anticipated approval date. It is unclear what, if any, impact these changes will have regarding the PCB cleanup at the Carlyle site.

5. Page 3-152 identifies soil clean-up levels established for the Carlyle property. This section states that the soil clean-up levels were established 'based on the presence of a shallow confining layer of clay and silt soils and the absence of groundwater contamination...' The discussion of groundwater on page 3-152 identifies several contaminants that have been detected in groundwater, including chromium; zinc; total petroleum hydrocarbons; bis 2-ethylhexyl phthalate; diethyl phthalate; and phenols. The text states that no volatile organic compounds (VOCs) were detected in groundwater.

Subsequent groundwater investigations performed in conjunction with the assessment of the new Time Life building at Carlyle confirmed the presence of several VOCs in groundwater. These have included both chlorinated and aromatic VOCs. Specifically, the VOCs detected and maximum concentrations in groundwater are as follows:

- Tetrachloroethylene (also commonly known as perchloroethylene, PCE, and dry cleaning solvent): 4,450 ug/l
- Benzene: 189 ug/l
- Toluene: 5 ug/l
- Ethyl benzene: 2 ug/l
- Xylenes: 9 ug/l
- Trichloroethylene: 19 ug/l
- 1,2 - Dichloroethane: 3 ug/l
- 1,1 - Dichloroethylene: 1 ug/l
- cis - 1,2 - Dichloroethylene: 3 ug/l
- Chloroform: 15 ug/l
- Trichlorofluoromethane: 50 ug/l

It appears that the documented presence of groundwater contamination at the Carlyle site may invalidate the basis upon which the soil cleanup levels were derived - i.e., the 'absence of groundwater contamination'. As such, VADEQ should be contacted to determine whether the existing soil cleanup standards are still considered valid, or whether new soil cleanup standards must be developed.

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6. Several site maps presented in the draft EIS incorrectly show the inactive landfill site as being completely to the south of the Carlyle site and Eisenhower Avenue (see Figures 3.6.3-2, 3.6.3-3). The text (see page 3-149) acknowledges that waste disposal in the Alexandria City Landfill extended to the north of Eisenhower Avenue, onto the southern portions of

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May 20, 1996

blocks M and N of the Carlyle site. Further information regarding the location of the former landfill is provided in the following documents:

- Administrative Procedures for Control of Contaminated Land, issued by Douglas Harman, City Manager, City of Alexandria, October 20, 1976. In summary, this document requires buildings or structures erected within 1000 feet of former sanitary landfills, dumps, or disposal areas to be designed to provide appropriate protection against methane. In addition to the standard design review procedures, the Fire Department shall review designs. The map which accompanies the Administrative Procedures shows the landfill extending to the north of Eisenhower Avenue, and up to roughly the southern edge of the roundhouse along the eastern portion of the site. The 1,000 foot buffer zone around the landfill encompasses the entire proposed Carlyle PTO site.
- Report, Methane Evaluation, Norfolk-Southern Rail Yard, Alexandria, Virginia, prepared by Dames & Moore for The Oliver Carr Company, January 13, 1969. Figure 2, entitled 'Location of Fill Boundaries Near Norfolk Southern Alexandria Rail Yard' provides a more expansive estimate of the fill boundaries. This estimate includes a larger portion of the proposed Carlyle PTO development. Methane concentrations in soil gas up to 100.000.000 parts per billion vapor (i.e., ten percent, or twice the lower explosive limit for methane in air) are reported.

As required by the City of Alexandria, many of the structures built within and outside the buffer zone have been equipped with methane control systems. Buildings known to include such systems include:

- The new Time Life headquarters buildings located on the northern portion of the Carlyle Development site.
- The American Trucking Association headquarters building located at 2200 Mill Road, just west of the landfill and southwest of the Carlyle site.
- The Alexandria Public Safety Center and Jail, located south of the landfill and Carlyle site.
- The Gibson warehouse, located just south of Eisenhower Avenue, on the northern portion of the landfill.
- The Tavern Square - Mantech office building located at 2320 Mill Road, immediately west of the Carlyle site, and south of the new Federal Courthouse.

Based on the proximity of the proposed PTO development at the Carlyle site to the landfill, the new buildings will be required to incorporate methane protection systems. The draft EIS briefly mentions the need for 'degassing' systems in the PTO development, but does not evaluate this requirement in terms of the additional time and cost associated with such systems. Additional costs associated with this requirement will include

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May 20, 1996

- Performance of a current subsurface methane investigation,
- Design and construction of a methane protection system. and
- Routine operation and maintenance of the methane protection system.

Additional costs for geotechnical investigations and foundation construction may also be required to minimize settlement that may result as the waste continues to degrade.

7. The following soil cleanup levels have been established for the **Carlyle** site:

- TPH: 250 mg/kg
- Total arsenic: 60 mg/kg
- Total lead: 200 mg/kg
- PCBs: 10 mg/kg

The soil cleanup levels negotiated for the site were based upon an exposure scenario that assumed the soils would remain undisturbed, thereby preventing human contact. It appears that these cleanup levels are not valid if the soil is to be excavated.

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While the current soil cleanup levels may be acceptable for undisturbed soils remaining at the site, it must be understood that excavation of soils having contaminants present at these levels will generate significant excavation, disposal, personal protection, and monitoring costs and delays during the excavation phase. The excavation project will involve many complicating factors that are not faced in the excavation of truly "clean" soil.

Note that construction of the proposed PTO complex would include a tremendous subsurface excavation effort. The proposed foundation would extend into groundwater at depths of 22 to 35 feet below grade (page 4-4), with the excavation of an estimated 60,000 cubic yards of subsurface material (page 2-11).

6. Despite attempts to adequately characterize the site prior to excavation, significant pockets of contaminated soils and industrial/hazardous waste may be missed. If present, these pockets will further exacerbate the excavation activities, resulting in increased costs and schedule delays.

The potential for encountering unanticipated wastes at the **Carlyle** site was proven during cleanup efforts in the utility corridors of Blocks N and O. As discussed on page 3-154:

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'During the excavation, compressed gas cylinders, inert unexploded ordnance (sic), storage drums, and tanks were discovered that were not anticipated (ECS, 1995). It is unknown whether these items were removed.'

Further evidence of subsurface waste outside the 'landfill' areas was observed during construction of the Tavern Square - Mantech office building located at 2320 Mill Road, immediately west of the **Carlyle** site, and south of the new Federal Courthouse. This building is constructed west of the area identified as the Alexandria City Landfill. An inspection performed during construction of the methane protection system in December 1976 documented the presence of subsurface solid waste and other fill materials in the walls of the foundation excavation.

May 20, 1908

9. While considerable site investigation and remediation efforts have been completed at the site over the last decade or so, it appears that significant efforts remain to be implemented. For example:

- No remediation of the TPH and PCBs detected on Block N has been documented (see page 3-154).
- The EIS states that the roundhouse structure was removed in March 1998. During a site visit performed on April 21, 1908, surface demolition and cleanup efforts at the roundhouse areas were ongoing. The former roundhouse was located on the eastern portion of the site, including portions of Block K on the proposed PTO development. The roundhouse area 'has not been examined and sampled for hazardous materials- (page 3-152). The EIS states that "petroleum contamination may be present beneath the building's former footprint". We agree that investigation of the former roundhouse area is required. Based upon the former activities at the roundhouse, we recommend analyses for TPH, RCRA metals, VOCs, and polynuclear aromatic hydrocarbons (PAHs). TPH, RCRA metals, and PAHs can be associated with used oil, with VOCs can be associated with used oil and solvents.
- "... the Smith Technology Corporation Report (1997) shows the subsurface soils also to be contaminated with petroleum hydrocarbons and the surface soils in Blocks K and N to be contaminated with elevated levels of lead. It is not clear that all potentially contaminated areas are being addressed in the developer's assessment.' (Page 4-I 20).

The EIS does not present an overall summary of the site investigation and cleanup status across the site. It appears that portions of the Carlyle site may have been remediated to the undisturbed soil cleanup levels, while other areas remain to be investigated and remediated.

9.3-9

Additional details must be provided concerning the specific investigation and remediation status of each of the blocks within the Carlyle. No Further Action letters, if generated by VADEQ, should be obtained and provided for areas where remediation has been complete. A reliable assessment of the potential cost and schedule impacts

10. The temporary groundwater treatment system installed during construction of the Time Life Building on Carlyle Block 8 (see page 3-155) has been replaced with a long-term system.

9.3-14

11. Part IV of the Virginia Solid Waste Management Regulations, entitled Manaoement of Open Dumps and Unpermitted Facilities (§9 VAC 20-80-170), specifies site investigation and corrective action requirements for sites that meet the definition of 'open dump'. Eight criteria for determining whether a site is considered an 'open dump' are specified in § 9 VAC 20-80-I 80. Sites that meet any of the criteria shall be classified as an open dump. While the currently available information is insufficient to make definitive determinations for all of the listed criteria, it appears that the site may meet some of the open dump criteria. These include:

9.3-4

- criterion: '4. Groundwater. A. A site or practice that contaminates a sole source aquifer or contaminates an underground drinking water source beyond the solid waste boundary or beyond an alternative boundary specified.'

May 20, 1996

Preliminary Evaluation: As discussed above, uncontrolled waste disposal activities have been confirmed at the site. Such practices may have resulted in waste materials being placed in contact with groundwater. For purposes of these regulations, groundwater at the site would meet the definition of an underground **source** of drinking water, and the regulatory action levels for contamination do not require much contamination (i.e., contamination is defined by drinking water standards).

Further Investigation Needed: An investigation of the types, quantities, and composition of fill materials and underlying groundwater quality is required, particularly in areas outside the solid waste boundary at the site.

- **Criterion: '8. Safety. A. Explosive Gases:** The concentration of explosive gases generated by the site or practice exceeds:

(1) 25% of the lower explosive limit for the gases in structures (excluding gas control or recovery system components) or, in the absence of structures located on the site, in the nearest occupied structure in the vicinity of the site; and

(2) The lower explosive limit for the gases at the property boundary '

Preliminary Evaluation: The former presence of swamp/marshland, combined with the known disposal of solid wastes on each of the three parcels, suggests the possibility for subsurface methane.

Further Investigation Needed: A site specific investigation is required to determine subsurface methane concentrations across the site and along the property boundaries. Because no structures are currently located on the parcels, methane measurements are required in the nearest occupied structures.

12. Estimated mobile source emissions resulting from motor vehicle use are presented in Section 4.6.1.3. Estimates of regulated organic gases (ROGs) and nitrogen oxides

(NO_x) are presented. While this section is confusing, it appears that the EIS concludes that mobile source emissions within the air basin will be essentially the same regardless of which alternative is selected, and that the increased emissions will be due solely to the increased activity and office space at the new location. Site specific factors that will impact the mobile source emissions do not appear to have been incorporated into the estimates. Details concerning the basis and assumptions for the estimated emissions are not presented in the draft EIS.

Specifically, we have the following concerns:

- Actual mobile source emissions will be based upon both commuting distance and commuting time to each location. Emissions will be generated while vehicles are idling in a traffic jam. We are concerned that the estimated emissions for the

9.1-3

May 20, 1908

Alexandria alternatives have not incorporated emissions generated while vehicles sit in gridlock, particularly during construction of the new interchange at the 'mixing bowl' in Springfield and the new Capital Beltway bridge over the Potomac River.

- . It does not appear that a site specific, average commuting distance was incorporated into the mobile source emissions estimates. If such an assumption were incorporated, the emissions estimates would not be the same for each alternative. In actuality, it appears that emissions for the Crystal City alternative would be less than the Alexandria alternatives since the Crystal City site is located closer to the urban core (Table 4.5.1-2 indicates the Crystal City site is 1.3 miles from the urban core, while the **Carlyle** site and the Eisenhower site are 5.4 miles and 6.1 miles, respectively, from the urban core). 9.1-2
- Estimated emissions should include both PTO employees and visitors. While visitor travel may have been considered in the DEIS emissions estimates, it does not appear that site specific factors have been considered. A significant number of PTO visitors are patent attorneys, many of whom have located their offices in the Crystal City area due to the frequent need to visit PTO offices. If the PTO moves to Alexandria, the patent attorneys will be required to commute to the new location until such time as their current leases expire and they can relocate to space near the new facility (if such space is available). It is our understanding that one of the largest patent attorney firms recently entered into a long-term lease in Crystal City. The increased emissions resulting from long-term commuting of the patent attorneys should be included in the emissions estimates for the Alexandria alternatives. 9.1-2
8.1-6

Qualitatively, it appears that relocation will increase time and vehicles, and thus the mobile source emissions of ROG_s and NO_x will increase. The Washington Metropolitan area is already a non-attainment area for ground-level ozone. ROG_s and NO_x react with sunlight to increase ground-level ozone concentrations. Thus, relocation of the PTO to either Alexandria site will exacerbate an already unacceptable air quality condition.